

**STI PULL-DOWN TO CONTROL SiGe FACET GROWTH**

**ABSTRACT OF THE DISCLOSURE**

- 5    A SiGe bipolar transistor including a semiconductor substrate having a collector and sub-collector region formed therein, wherein the collector and sub-collector are formed between isolation regions that are also present in the substrate is provided. Each isolation region includes a recessed surface and a non-recessed surface which are formed utilizing lithography and etching. A SiGe layer is formed on the substrate as well as the recessed
- 10    non-recessed surfaces of each isolation region, the SiGe layer includes polycrystalline Si regions and a SiGe base region. A patterned insulator layer is formed on the SiGe base region; and an emitter is formed on the patterned insulator layer and in contact with the SiGe base region through an emitter window opening.